

A Survey of *Hydromys chrysogaster*, the Australian Water Rat in Central Gippsland.

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Introduction

Hydromys chrysogaster, the water rat is reported as widespread and common throughout Australia, inhabiting most inland water systems, estuaries, marine beaches and offshore islands. It is highly adapted to aquatic life and is easily distinguished from all other native rodent species by the webbing between the toes of its hind feet. Other distinctive features include its thick white-tipped tail, long blunt muzzle, flattened head and small eyes and ears (see Fig. 1). It is usually found close to water but may range over considerable distances in search of food (McNally, 1960). The diet includes fish, large aquatic insects, crustaceans, small birds and mussels (Woollard *et al.*, 1978).

From surveys carried out by the Fisheries and Wildlife Division (Norris *et al.*, 1979; Norris and Mansergh, 1981; Mansergh and Norris, 1982; Norris *et al.*, 1983) it was found that water rats were not generally common in the Gippsland region. Although often present in lowland rivers and occasionally found upstream in the ranges, water rats were neither as common nor as damaging as in northern Victoria (McNally, 1960).

In this study the result of trapping, during 1983, along the Latrobe River and its tributaries, are presented. Although a mammal survey was not the primary aim of the study as water rats were required for parasitological purposes these results provide new records of water rat distribution in Central Gippsland. Overall however, the findings, of previous surveys, that water rats have a scattered distribution and are uncommon in South, Central and the Lakes Catchment Regions of Gippsland were confirmed.

Methods

Trapping took place during the period December, 1982-December, 1983. Wire mesh cage traps (10 supplied by courtesy of the Fisheries and Wildlife Division, 4 supplied courtesy of the Veterinary Clinical Centre, Werribee) baited with fish or sardines were used. Trapping localities are shown in Fig. 2. Some were selected because of reports that water rats had been seen in the area, others because the habitat seemed suitable. Trapping sites are listed in Table 1. Traps, sited so as to minimise interference from local fishermen and campers, were left 2-3 days, being checked daily.

Results

Results are given in Table 1. A total of 37 bush rats *Rattus fuscipes*, one black rat *Rattus rattus*, one platypus *Ornithorhynchus anatinus*, one feral cat *Felis catus*, and five water rats *Hydromys chrysogaster* were captured. Of the water rats, three were from the Latrobe River near the junction with the Morwell River and the outfall from the Blue Lagoon (sites 11 and 12), while two were from the Macalister River near Cheynes Bridge (site 9). The specimens from the Latrobe River had a creamy-white underbelly, while those from the Macalister River were the rich, golden-yellow colour variant. Of the other trapping sites selected, water rats had been seen some years earlier at the Middle Creek, Yinnar South (site 1), but there was now no sign of feeding tables, burrows or tracks. Since the water flow had been lowered almost to a trickle because of the drought, any water rats previously inhabiting the area may have moved to more suitable locations. A water rat had been reported swimming down stream from the Willow Grove site (site 14)

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Fig. 1 The water rat (*Hydromys chrysogaster*) is an uncommon mammal of Central Gippsland.

during October, but no signs of water rat presence were found along the Tanjil River. Feeding tables at the McLennan Straits site (site 3), were the only other signs of water rats seen during the survey.

At Mt. Elizabeth Road Crossing (site 16) the campsite was raided on two evenings, suggesting the presence of water rats in the area (Watts and Aslin, 1981). No water rats were caught at the Boolarra Fish Farm (site 2), although water rats had been reported there some months previously. Flooding along the Thomson River during April inundated the trapping sites and while the traps were under water a platypus was caught and drowned at Reilly's Bridge (site 7). All the bush rats caught were released at the place of capture.

Discussion

The results of this survey confirm the findings of the Fisheries and Wildlife Division that water rats are not

commonly found in the Latrobe River and its tributaries. The two localities where water rats were trapped represent new records for the literature, although informal conversations had indicated the possible presence of the species in the Macalister River. There are two fish farms in the region, one at Boolarra and the other at Noojee. The proprietors of both farms were contacted during the survey period. Permission was granted to trap at Boolarra, there having been trouble with water rats some months previously, but not at Noojee, where they had not seen water rats for years. It seems likely that any water rats moving into either of these places would be quickly removed to protect fish stocks. During the mammal survey at Darlimurla in 1968 (Seebeck *et al.*, 1968) a water rat was collected and it was suggested that it might have been ranging from its home territory. With the establishment of the fish farm at Boolarra, it is likely that any

Table 1. Mammals trapped during a survey of *Hydromys chrysogaster*.

Locality	Trap			Other
	Nights	<i>H. chrysogaster</i>	<i>R. fuscipes</i>	
1. Middle Creek	12	—	—	—
2. Boolarra Fish Farm	39	—	—	—
3. McLennan Straits	12	—	—	—
4. Hearn Landing	12	—	—	—
5. Sale Swing Bridge	8	—	1	—
6. Heyfield Bridge	15	—	4	<i>R. rattus</i>
7. Reilley's Bridge	17	—	4	<i>O. anatinus</i>
8. Cowwarr Weir	9	—	—	—
9. Cheynes Bridge	45	2	11	—
10. Glenfalloch	12	—	—	—
11. Toms Bridge	9	1	—	—
12. Blue Lagoon	39	2	9	<i>F. catus</i>
13. Tyers Road Bridge	24	—	3	—
14. Willow Grove	21	—	2	—
15. Fumina Bridge	18	—	3	—
16. Mt. Elizabeth Road Crossing	27	—	—	—

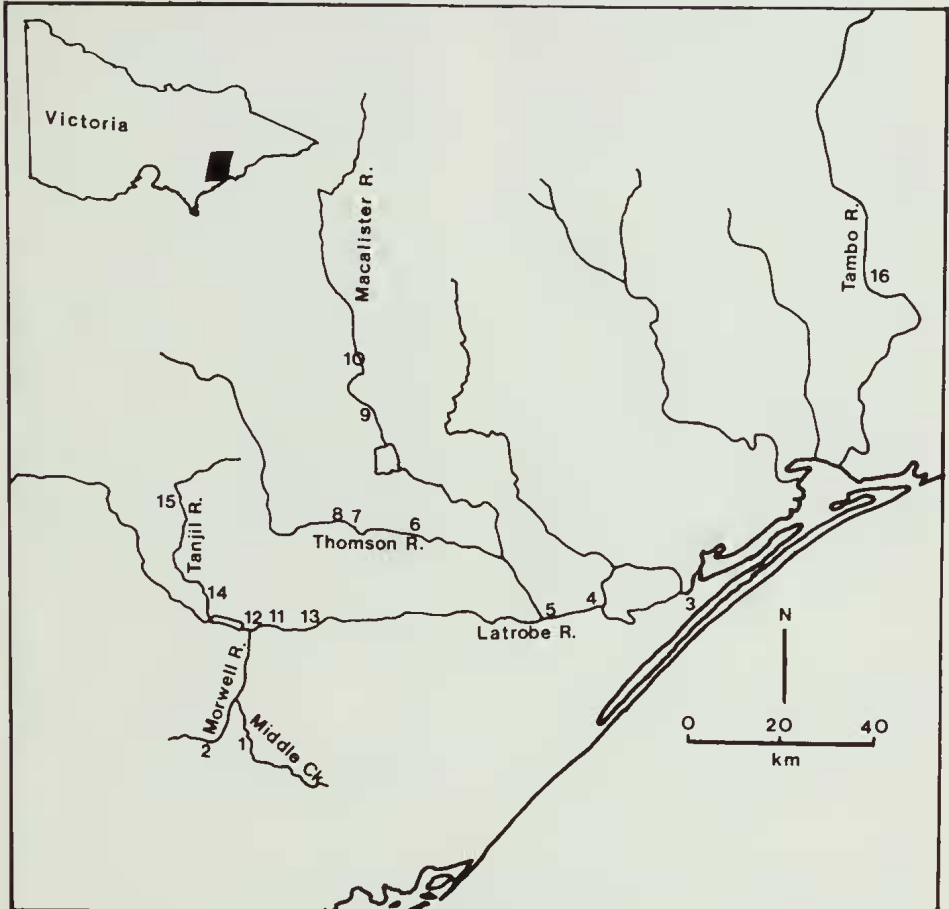


Fig. 2. Location of trapping sites.

water rats travelling through the area from the Morwell River would be regarded as pests and removed.

The water rat is usually reported as widespread and abundant. However, in inland waterways which have not been disturbed by man, it is likely that its distribution is scattered and that it may be relatively uncommon. Watts and Aslin (1981) suggested that the water rat may be one of the few native mammals to have profited from human activities in some areas. Certainly it is in areas where intensive irrigation projects have been developed, such as in the Murray-Goulburn district, or where fishermen's activities, including disposal of fish offal in the water, have become established, that water rats are known to be common and may be designated pests. In the Gippsland surveys, the water rat was found to be common only around fishing ports such as Paynesville (Norris *et al.*, 1983).

One of the options which the State Electricity Commission of Victoria proposes in its future planning for brown coal development, is the diversion of the Morwell River to the east of Morwell, to provide access to coal fields west of Yallourn. This would destroy the only location within Central Gippsland where water rats seem, at present, to be relatively abundant. Mansergh and Norris (1982) designated Tarra Valley as a site of regional significance partly on the basis of having recent records of

Hydromys chrysogaster, "which is uncommon in this part of Gippsland". The importance of the Tarra Valley Block for the survival of water rats within the region will be even greater if the Morwell River diversion goes ahead.

Acknowledgements

This work was carried out under the provisions of Fisheries and Wildlife Permit No. 82-168. My thanks to Mr G. Warner, for assistance with field work and to Mr N. Smith of the S.E.C., for permission to trap within the Yallourn Power Station precincts.

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